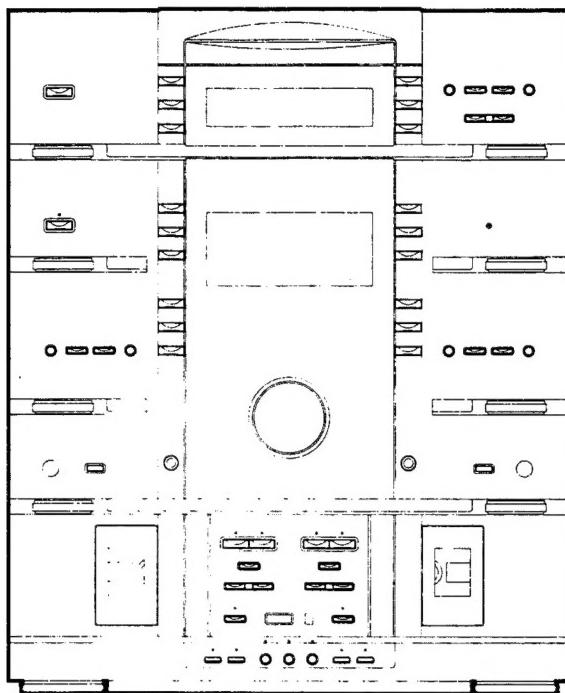


Technische Unterlage

Best.-Nr.:
037 021 2

VTC-CD151



UTS-Nr.: 999 QUELLE

Best.Nr.: 0370213/01

Ger.Bez.: UNIV.POWER-PACK

GKz: G GERAET

WGT: 652 POWERPACK

KD-Sektor: R RUNDFUNK

BaumNr.: 00 KEIN DIAGNOSEBAUM VORHANDEN

Klassierung: STK STEREOKOMBINATION

IFW-FehlerGru.: 205 RDF.,VERST.,TB.,PHONO,CD,CB

Type/Privileg/Universum.Nr VTC-CD151

Beschreibung

VK-Preis: 1099.00

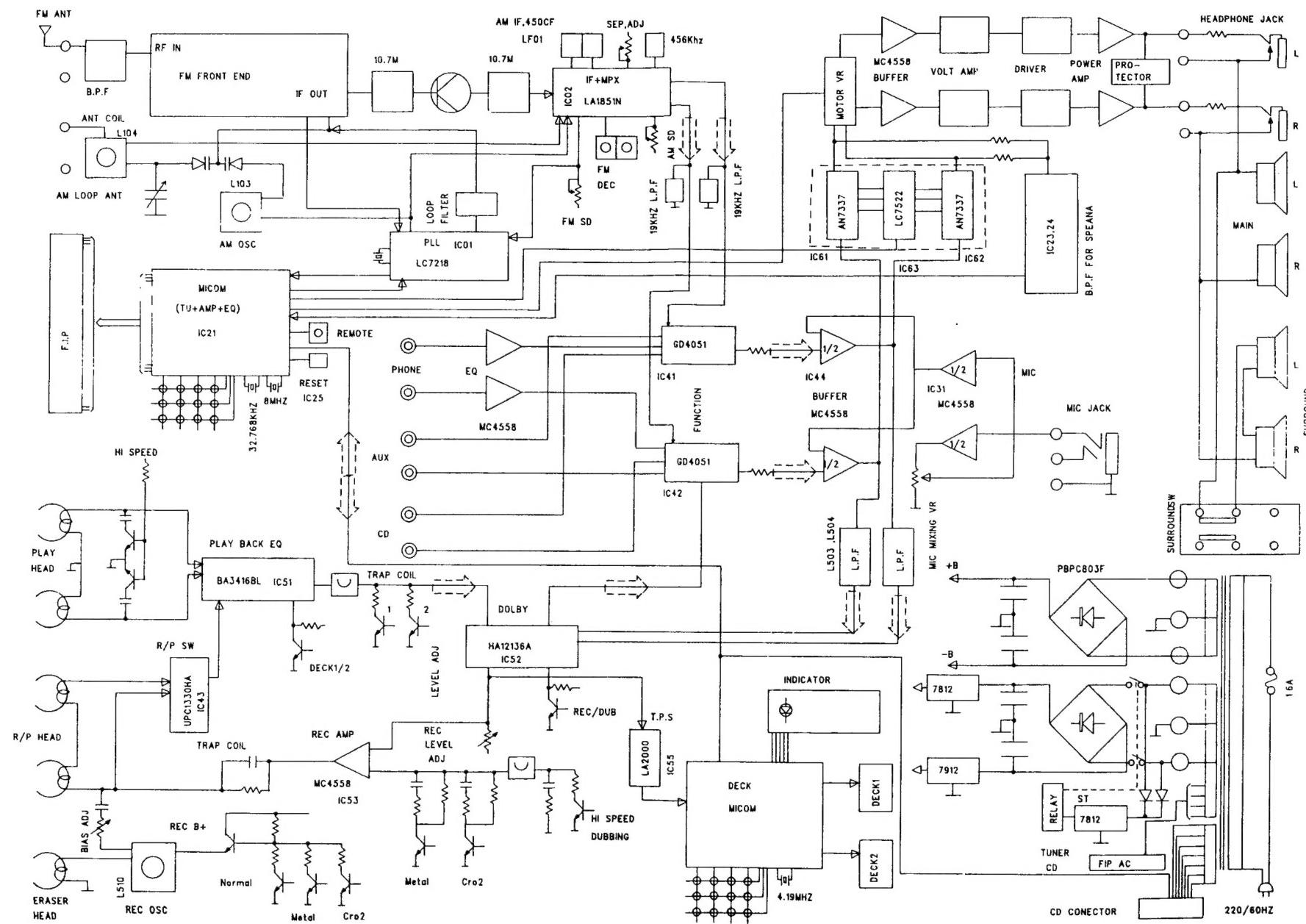
Serviceart: 01 QUELLE-TKD

Garantie fuer Kunden 06 Monate

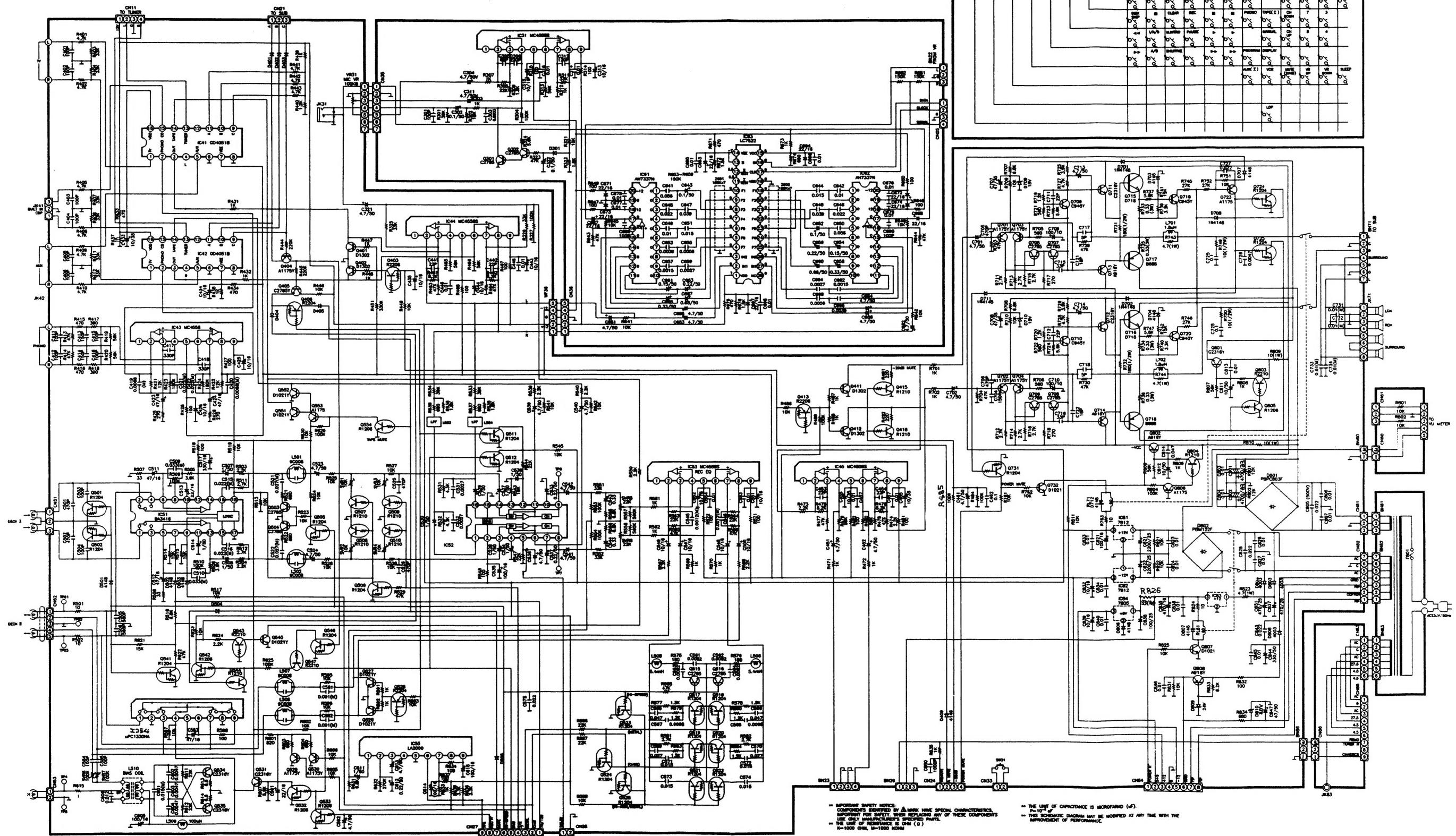
Sondervereinbarungen: 0 SIEHE SERVICEART

KAT. 952 DATUM 14.03.95 SEITEN 20

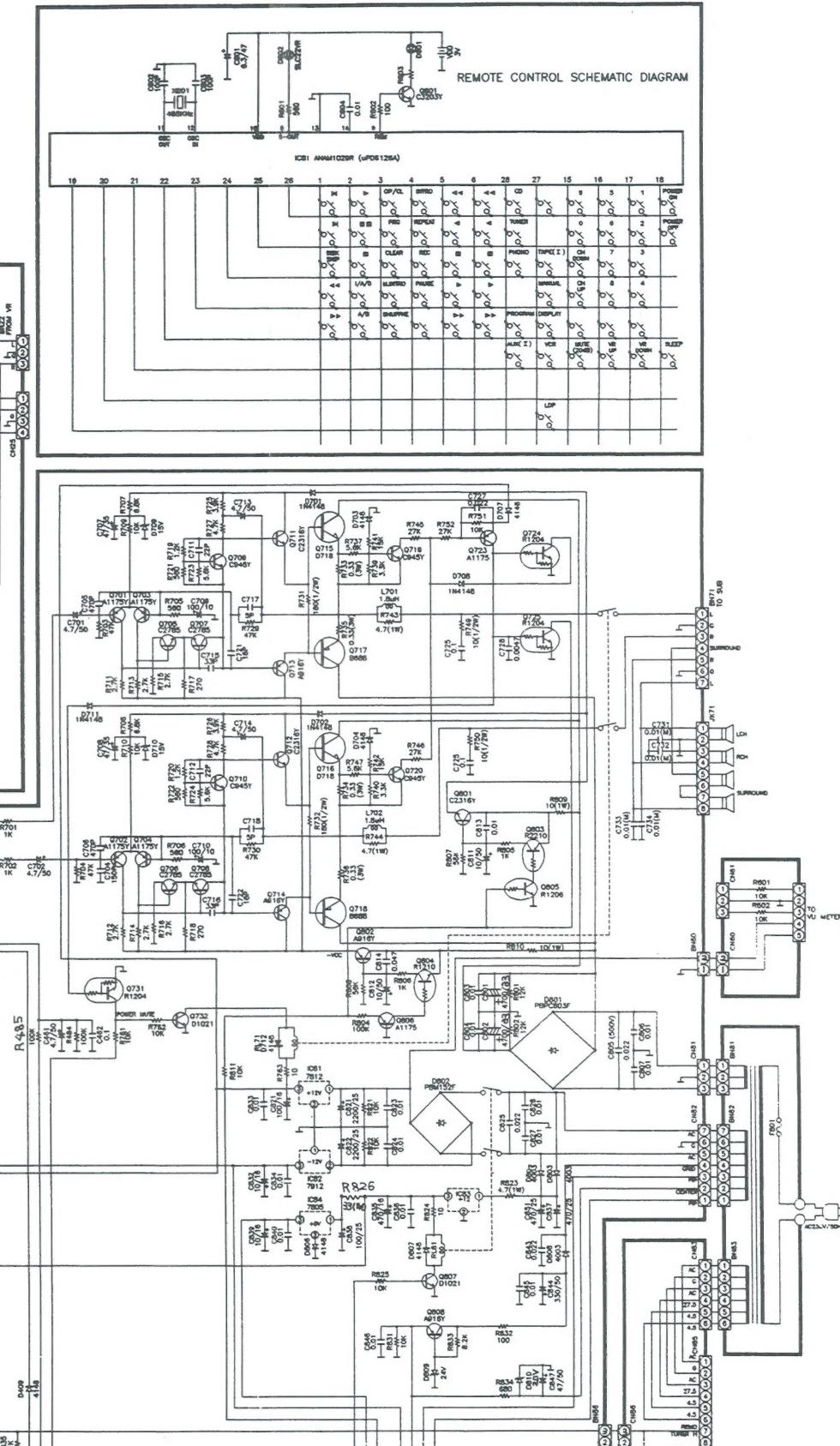
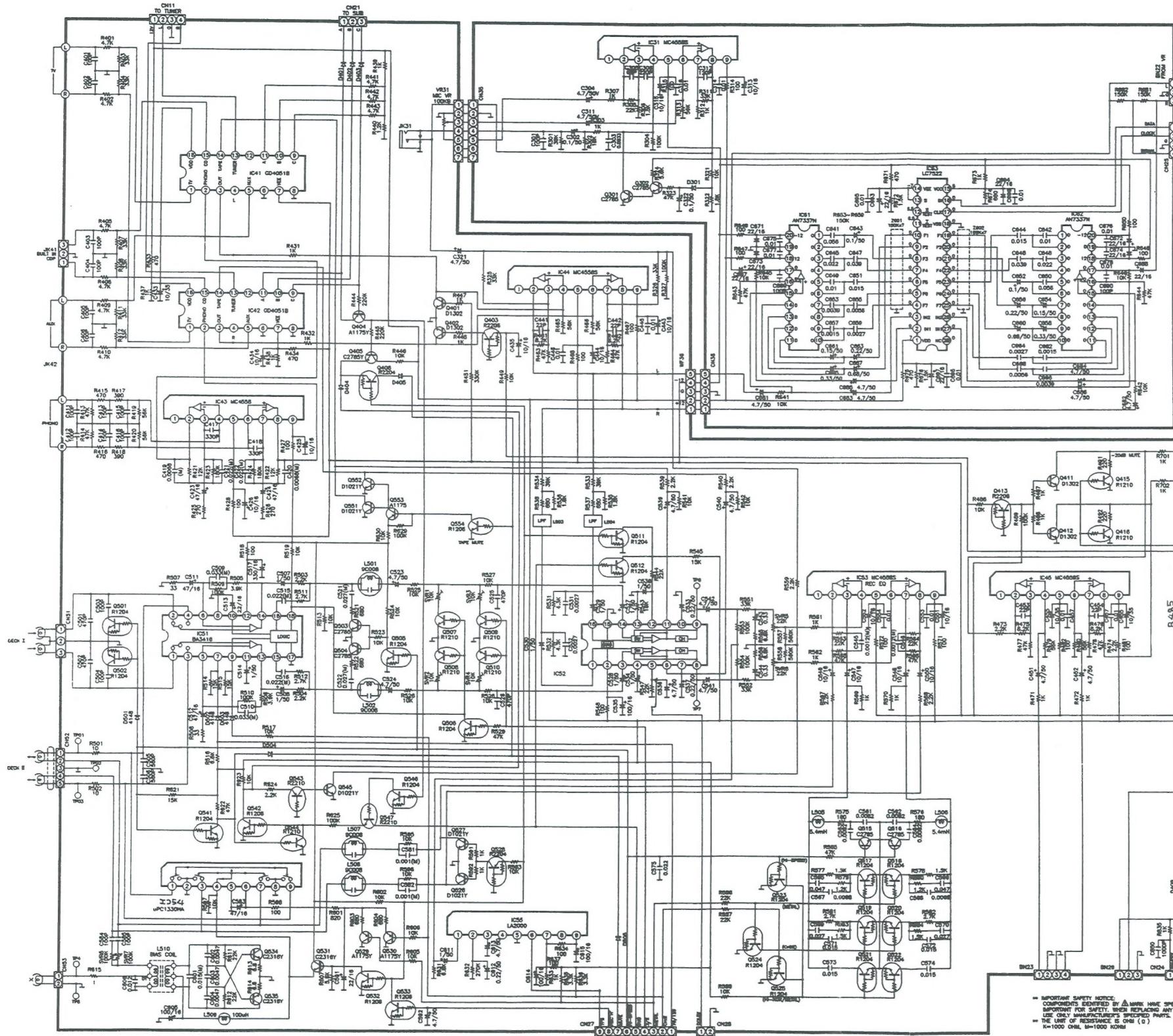
■ BLOCK DIAGRAM



■ SCHEMATIC DIAGRAM (MAIN)



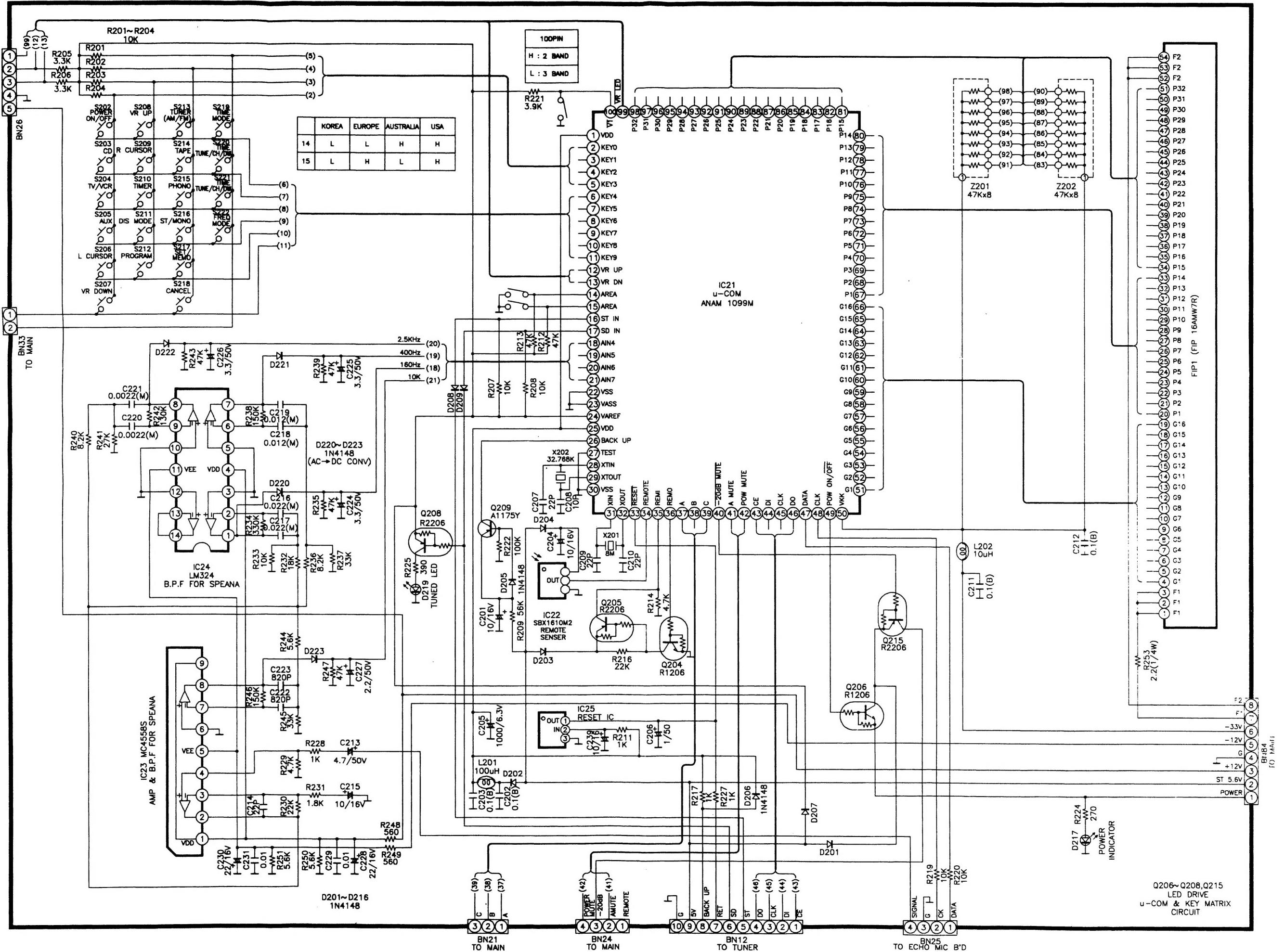
■ SCHEMATIC DIAGRAM (MAIN)



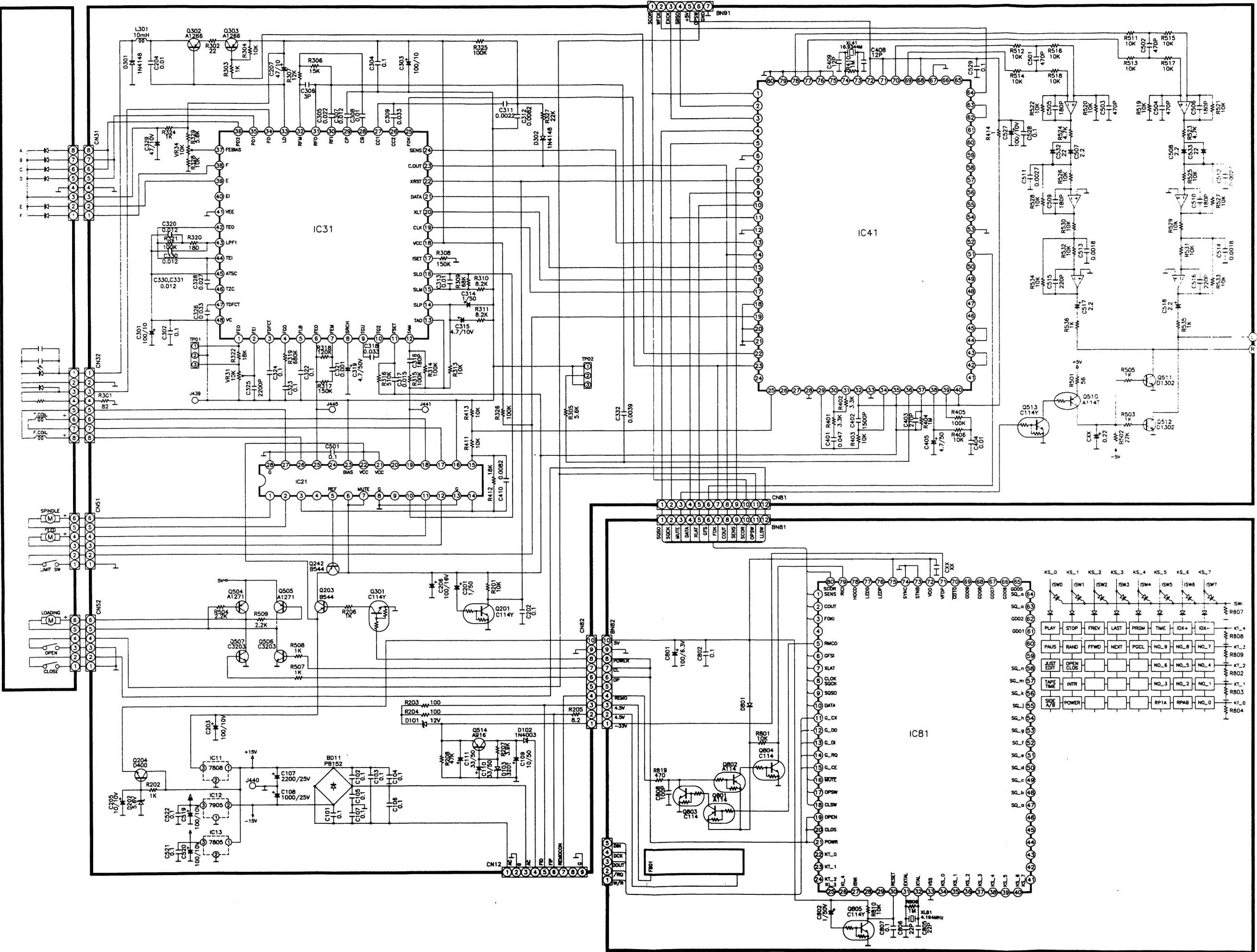
■ IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY △ MARK HAVE SPECIAL CHARACTERISTICS.
IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE MANUFACTURER'S SPECIFIED PARTS.
THE UNIT OF RESISTANCE IS OHM (Ω)
K=1000 OHM M=1000 KOMA

■ THE UNIT OF CAPACITANCE IS MICROFARAD (μF).
P=10⁻¹²
■ THE SCHEMATIC DIAGRAM MAY BE MODIFIED AT ANY TIME WITH THE
IMPROVEMENT OF PERFORMANCE.

(SUB)

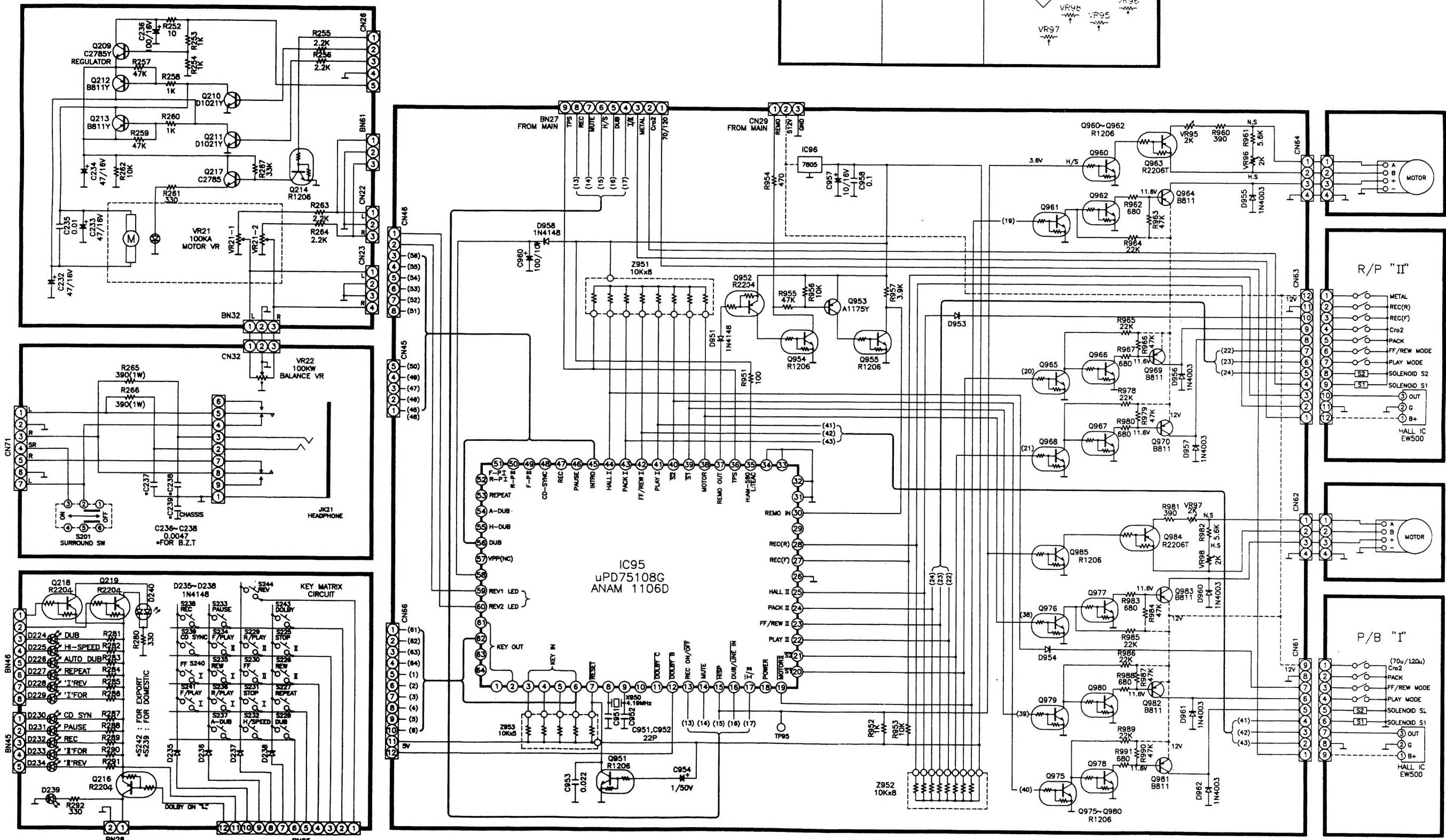


■ SCHEMATIC DIAGRAM

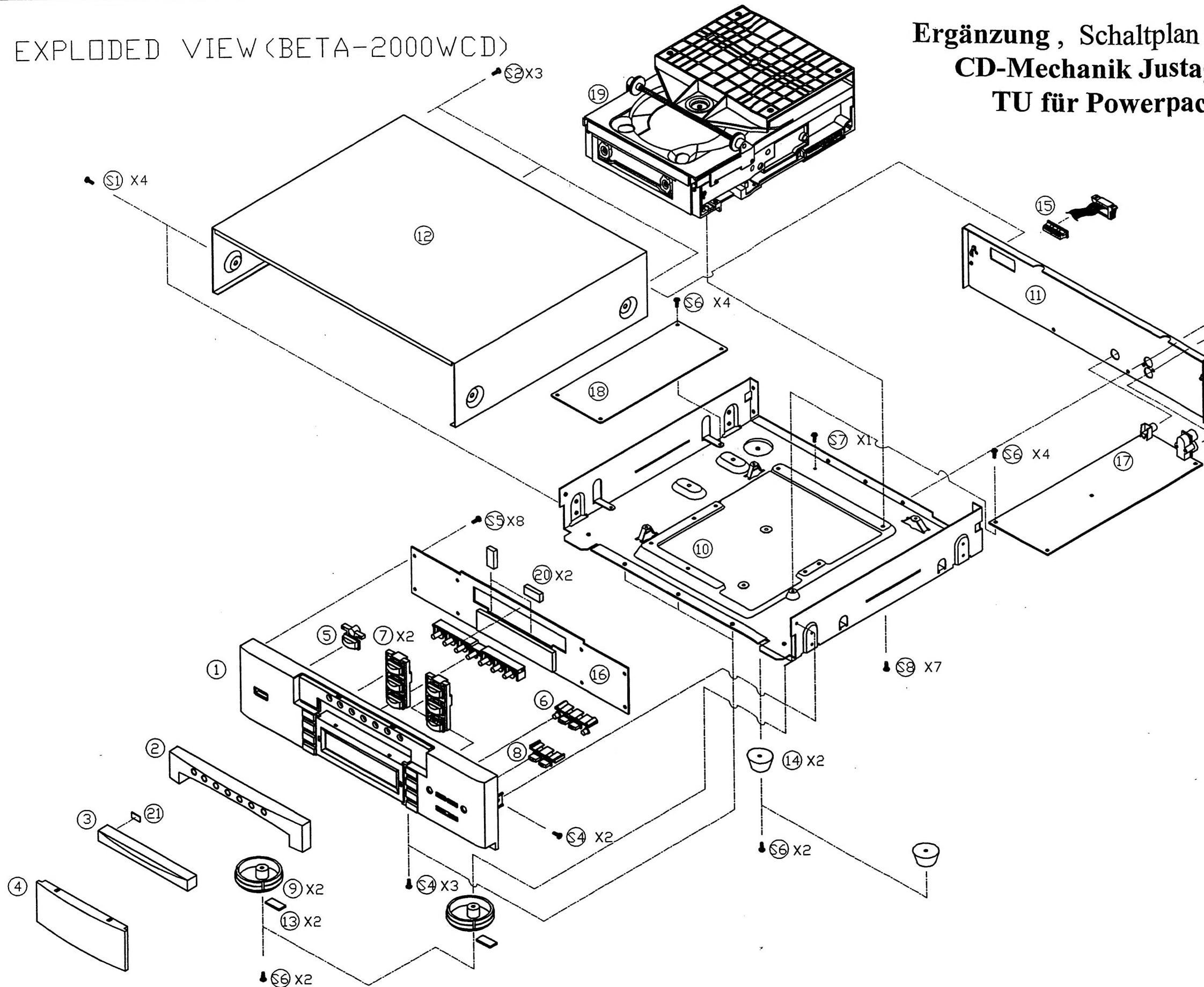


CONTROL PCE

(CONTROL)



EXPLODED VIEW (BETA-2000WCD)



Ergänzung , Schaltplan für 7 fach CD-Wechsler
CD-Mechanik Justage siehe QBNr. 036.656
TU für Powerpack siehe QBNr. 037.021

Best.Nr.: 1853308/01
 Ger.Bez.: UNIVERSUM-TURM
 GKz: G GERAET
 WGT: 659 KOMPLETTE STEREO-TUERME
 KD-Sektor: R RUNDFUNK
 BaumNr.: 00 KEIN DIAGNOSEBAUM VORHANDEN
 Klässierung: STK STEREOKOMBINATION
 IFW-FehlerGru.: 205 RDF.,VERST.,TB.,PHONO,CD,CB
 Type/Privileg/Universum.Nr VTCF-150A
 Beschreibung M.7CD-WECHSLER
 VK-Preis: 1399.00

Serviceart: 01 QUELLE-TKD
 Garantie fuer Kunden 06 Monate
 Sondervereinbarungen: 0 SIEHE SERVICEART

Garantiereparatur 9999999 QUELLE
 Sondervereinbarungen: 0 SIEHE SERVICEART

Katalog Seite
 Erst 983 SONDERKATALOGE F/S 98 0000
 Letzt 000 0000

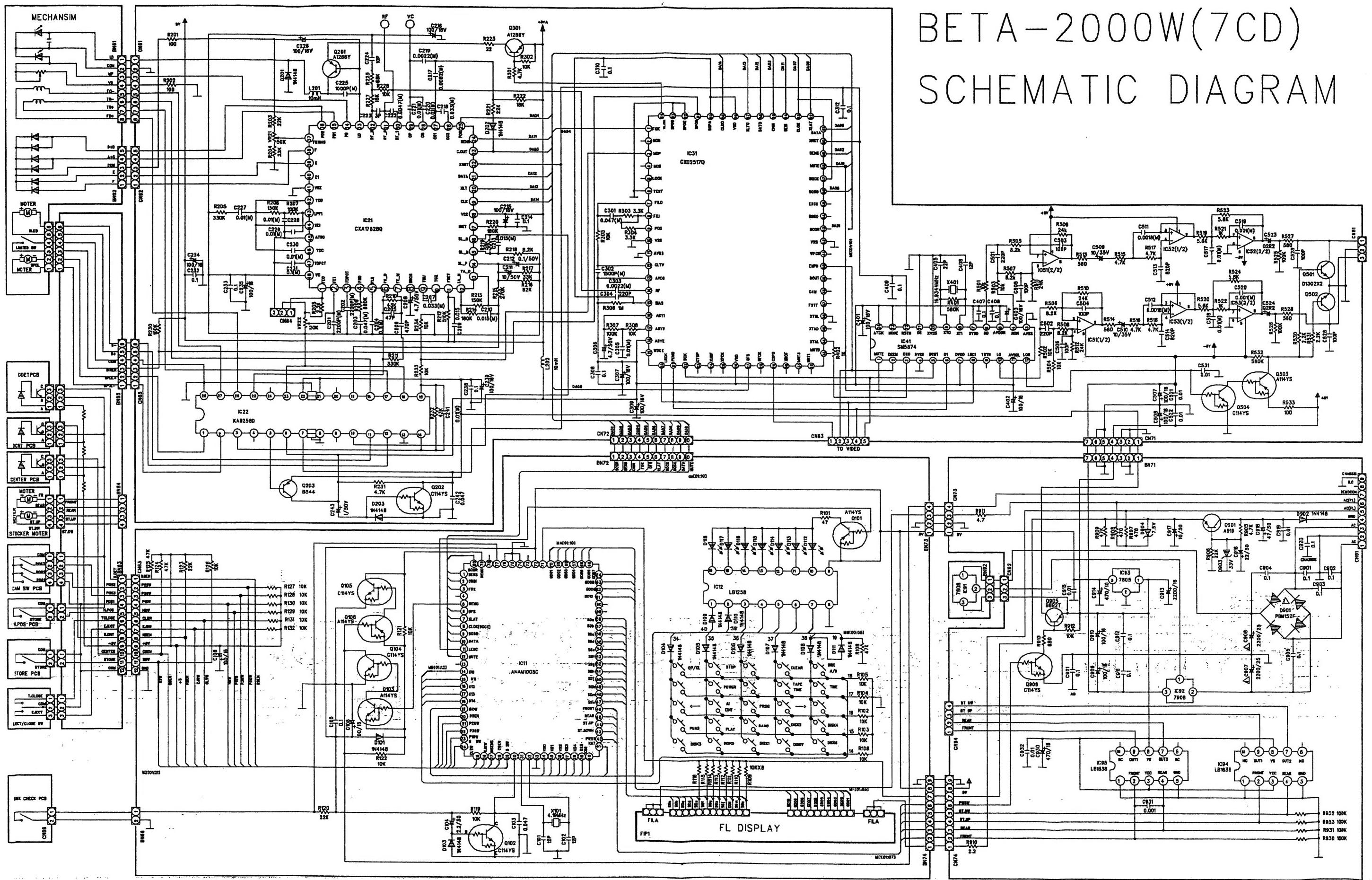
Geraete Info:
 POWERPACK OHNE CD IST BAUGLEICH MIT QBNR.037.021
 CD-JUSTAGE SIEHE QBNR. 036.656

Technische Daten:

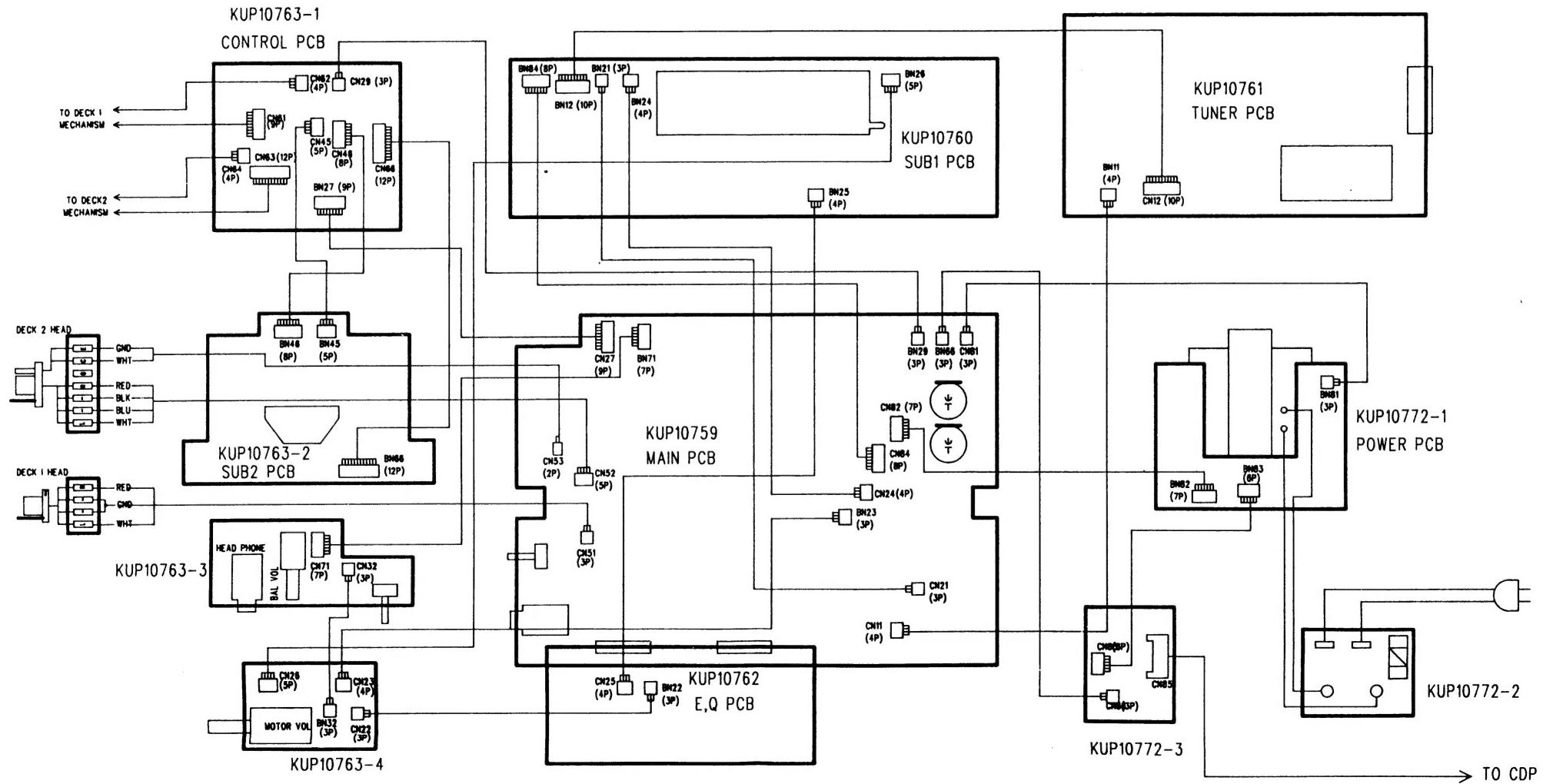
Fehler:

- 1 7-CD-WECHSLER OHNE FUNKTION
 FEHLER: CD-WECHSLER OHNE FUNKTION
 URSCHE: MASSEVERBINDUNG UEBER TONLEITUNG (CINCH)
 ABHILFE: VERBINDUNG (CINCH) HERSTELLEN
- 2 PICKUP NACH AUSTAUSCH OHNE FUNKTION
 KURZSCHLUSSBRUECKEN BEI WECHSELMECHANIKEN ETNR.
 0410753 UND 0334599 MUSSSEN AM SPOL-ANSCHLUSS
 (CN801) PIN 1 - PIN 2 DER CONNECTOR-PLATINE SIO-10
 ENTFERNT WERDEN.
 ACHTUNG, BEI MANCHEN NEUGERAETEN WURDE FESTGESTELLT
 DAS AUCH HIER DIE BRUECKEN NOCH GELOETET SIND !!!

BETA-2000W(7CD) SCHEMATIC DIAGRAM



■ WIRING DIAGRAM

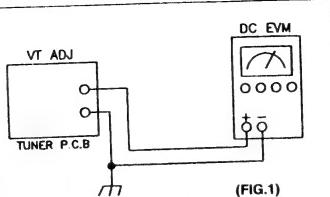


MEASUREMENTS AND ADJUSTMENTS

MW/FM

TUNING FREQUENCY RANGE ADJUSTMENT

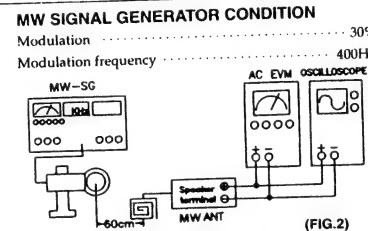
1. Test equipment connection is shown in figure 1.
2. Set the unit to the desired band(FM, MW)
3. Place the radio frequency to 108MHz for FM, 600KHz for MW.
4. Adjust L7 for FM, L103 for MW so that the DC voltage is 8.0V for FM, 1.2V for MW.



MW RF ADJUSTMENT

1. Test equipment connection is shown in figure 2.
2. Set the unit to "MW" position.
3. Place the radio frequency display and signal generator setting to 612KHz for MW.
4. Adjust L104 for maximum output.
5. Place the radio frequency display and signal generator setting to 1500KHz for MW.
6. Adjust CT02 for maximum output.
7. Repeat steps 3 - 6.
8. Adjust LF01 for maximum output.

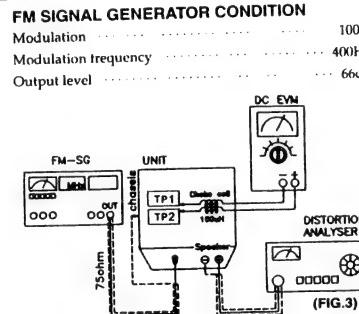
Note: Antenna input level must be as low as possible being free from AGC.



FM MONO DISTORTION ADJUSTMENT

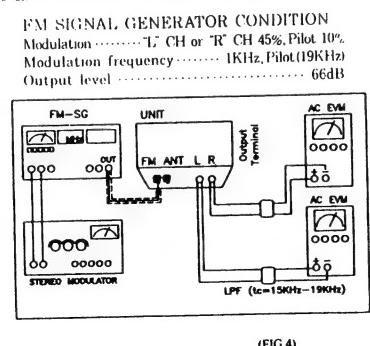
1. Test equipment connection is shown in figure 3.
2. Set the unit to "FM" position.
3. Place the radio frequency display and signal generator setting to 100.10MHz.
4. Adjust T102 core so that voltage measured in signal mode is $0mV(0 \pm 30mV)$ in range.
5. Adjust T101 so that the distortion factor of L-ch is minimized.
6. Repeat steps 4 and 5 a few times.
7. Make sure that the distortion factors of L-ch and R-ch nearly the same with each other to minimum.

Note: The adjusting screwdriver used should be made of ceramic.



FM STEREO OPERATION ADJUSTMENT

1. Test equipment connection is shown in figure 4.
2. Set the unit to "FM" position.
3. Place the radio frequency display and signal generator setting to 100.1 MHz.
4. STEREO MODULATION setting MODE "STEREO"
5. Adjust VR 03 for Lch and Rch operation maximum.



*CASSETTE

MEASUREMENT CONDITION:

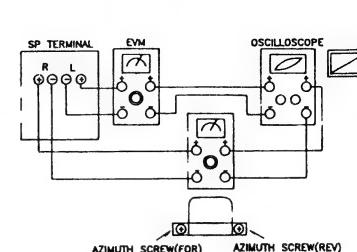
1. Make sure heads are clean.
2. Make sure capstan and pressure roller are clean.

TEST TAPE:

- Head azimuth adjustment(10KHz, -10dB) : TCC-153
- Tape speed adjustment(3KHz, -10dB) : TCC-112
- Normal reference blank : TCC-103A
- Dolby level adjustment (3.30Hz, 0dB) : MTT-150

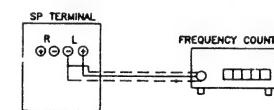
HEAD AZIMUTH ADJUSTMENT(TAPE I, II)

1. Test equipment connection is shown in figure.
2. Playback the azimuth adjusted part(10KHz, -10dB) of the test tape(TCC-153) and regulate the angle adjusting screw so that the outputs of L-ch and R-ch are maximized.
(When the adjusting positions are different with L-ch and R-ch, find and position where the outputs of L-ch and R-ch are balanced, and then mark the adjustment.)
3. At the same time, draw a lissajous waveform and eliminate phase deflection.
4. After the adjustment, apply screw-lock to the angle adjusting value.



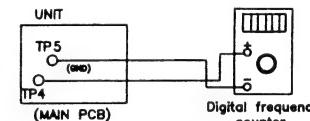
TEST SPEED ADJUSTMENT(TAPE I, II)

1. Test equipment connection is shown in figure .
2. Place unit into "TAPE" position.
3. Playback the test tape TCC-112.
4. Adjust first VR98(VR96) (TAPE I, II) for high speed ($6000 \pm 120Hz$) and then VR97(VR95) (TAPE I, II) for Normal speed ($3000 \pm 60Hz$)



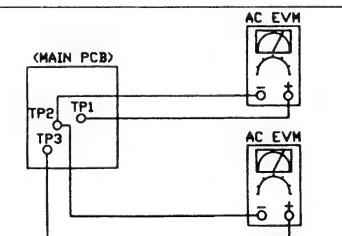
BIAS OSCILLATION ADJUSTMENT (TAPE II)

1. Test equipment connection is shown in figure.
2. Set the unit to "TAPE" position.
3. Insert a CrO₂ tape and then press the record and pause button.
4. Adjust L510 for 105KHz on frequency counter reading.



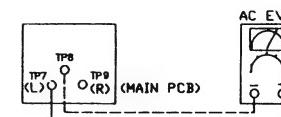
RECORDING BIAS ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "TAPE" Position.
3. Insert a Metal tape and set the cassette deck to "REC" mode.
4. Adjust SVR R(L-ch) and SVR7(R-ch) for recording bias so that voltage in signal is 1400 μ A
5. At the same time, check CrO₂ tape(800 μ A) and Normal tape (600 μ A)

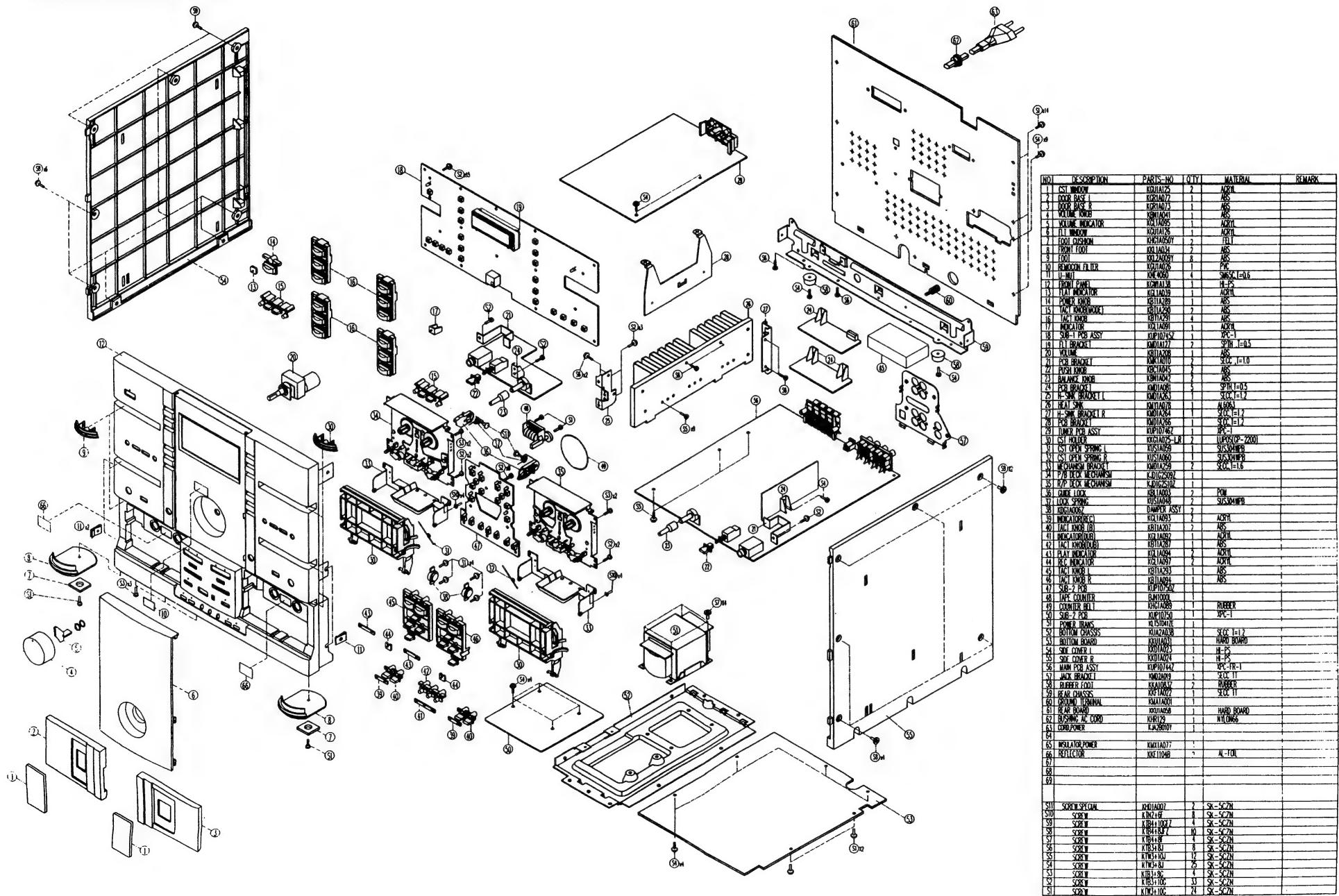


PLAYBACK GAIN ADJUSTMENT

1. Playback the playback gain adjust part (400Hz, 200mWb) of the test tape (MTT-150)
2. DECK I ┌─ L-CH Adj point : SVR2
└─ R-CH Adj point : SVR1
3. DECK II ┌─ L-CH Adj point : SVR4
└─ R-CH Adj point : SVR3
So that AC mV meter will become 580mV.



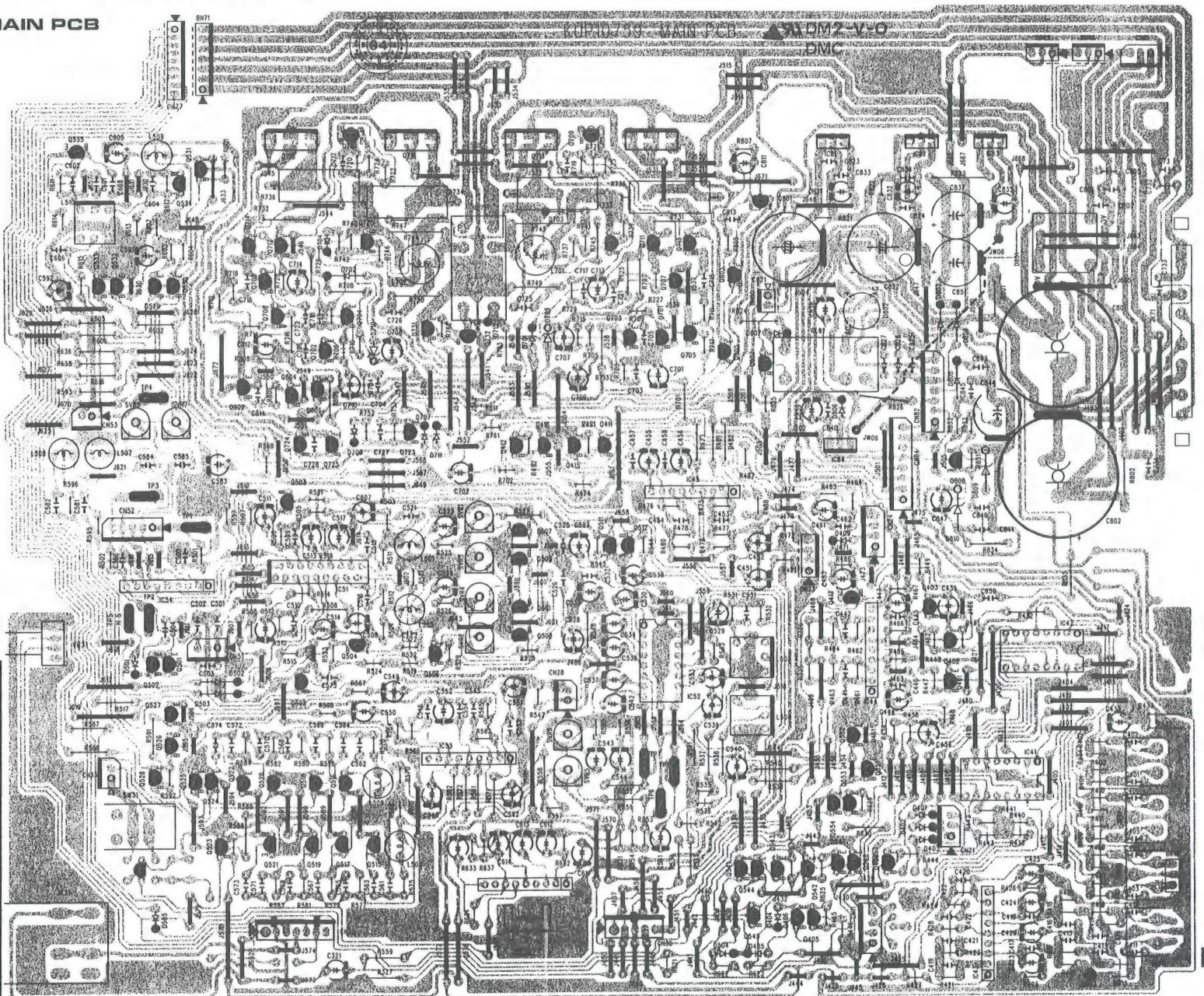
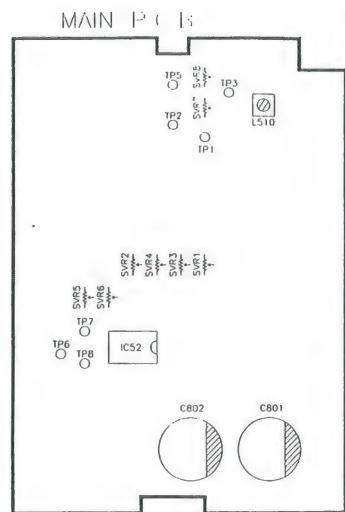
■ EXPLODED VIEW



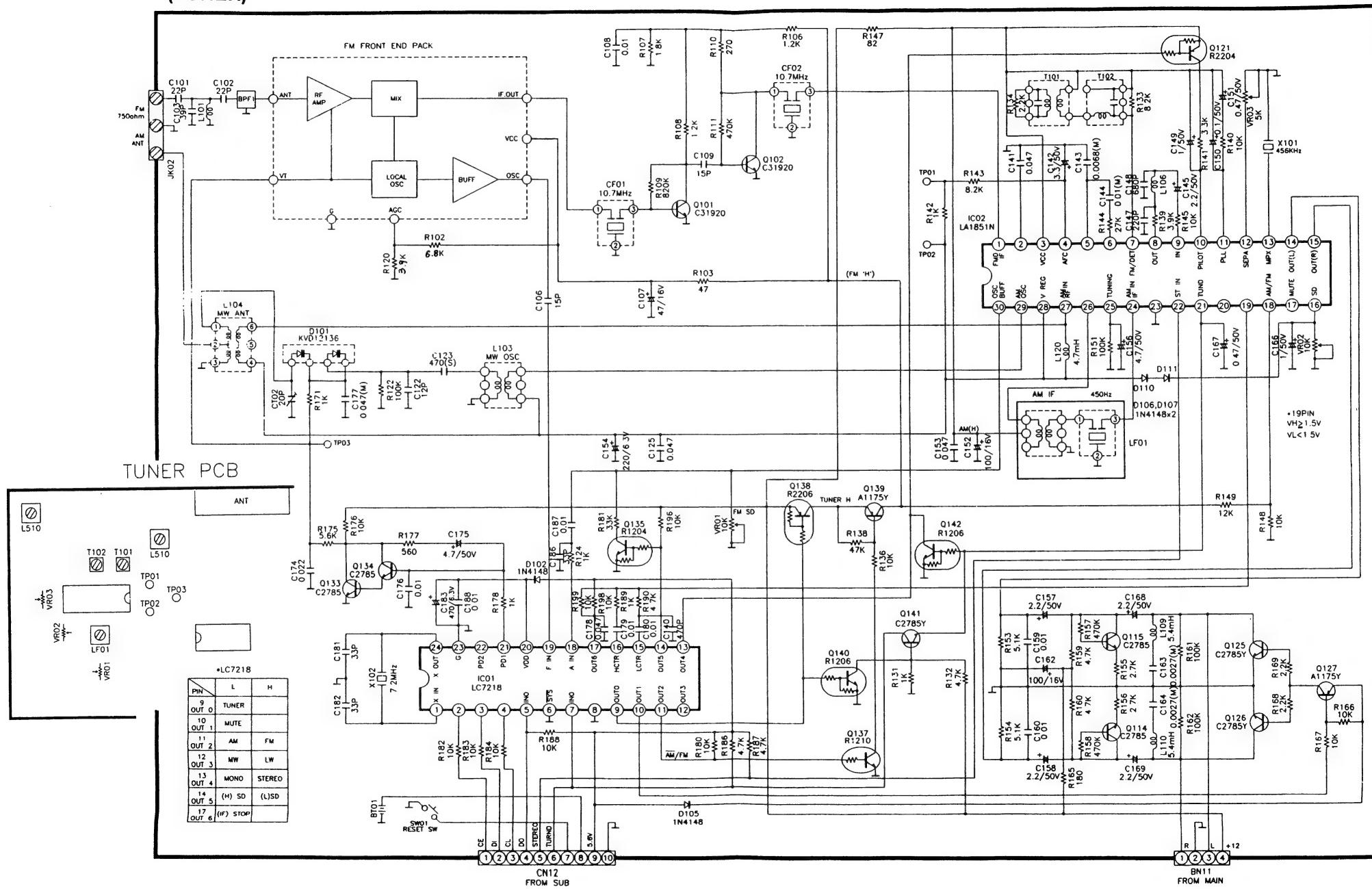
■ PRINTED CIRCUIT BOARDS

• MAIN PCB

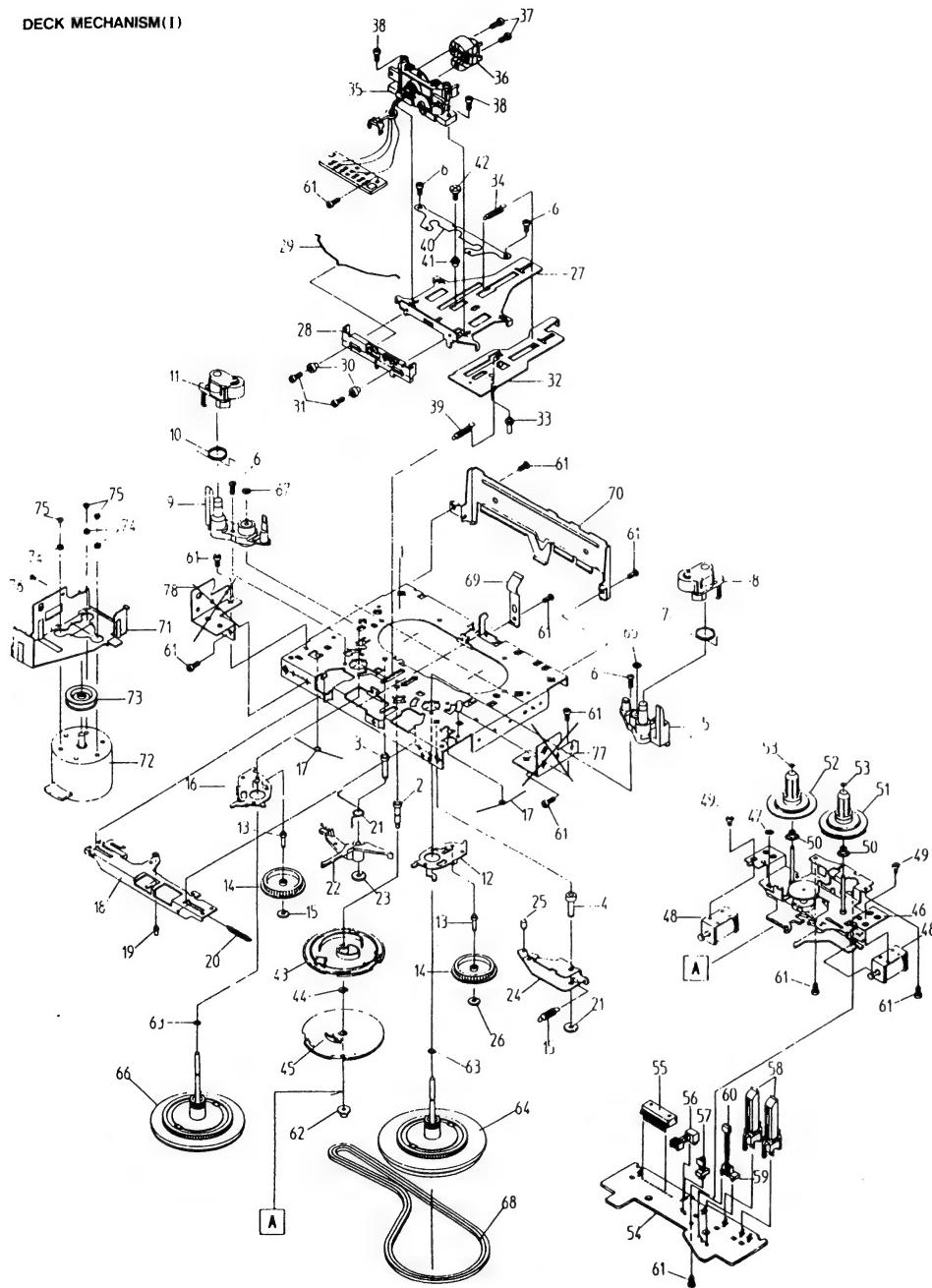
KUP10759 EXPORT



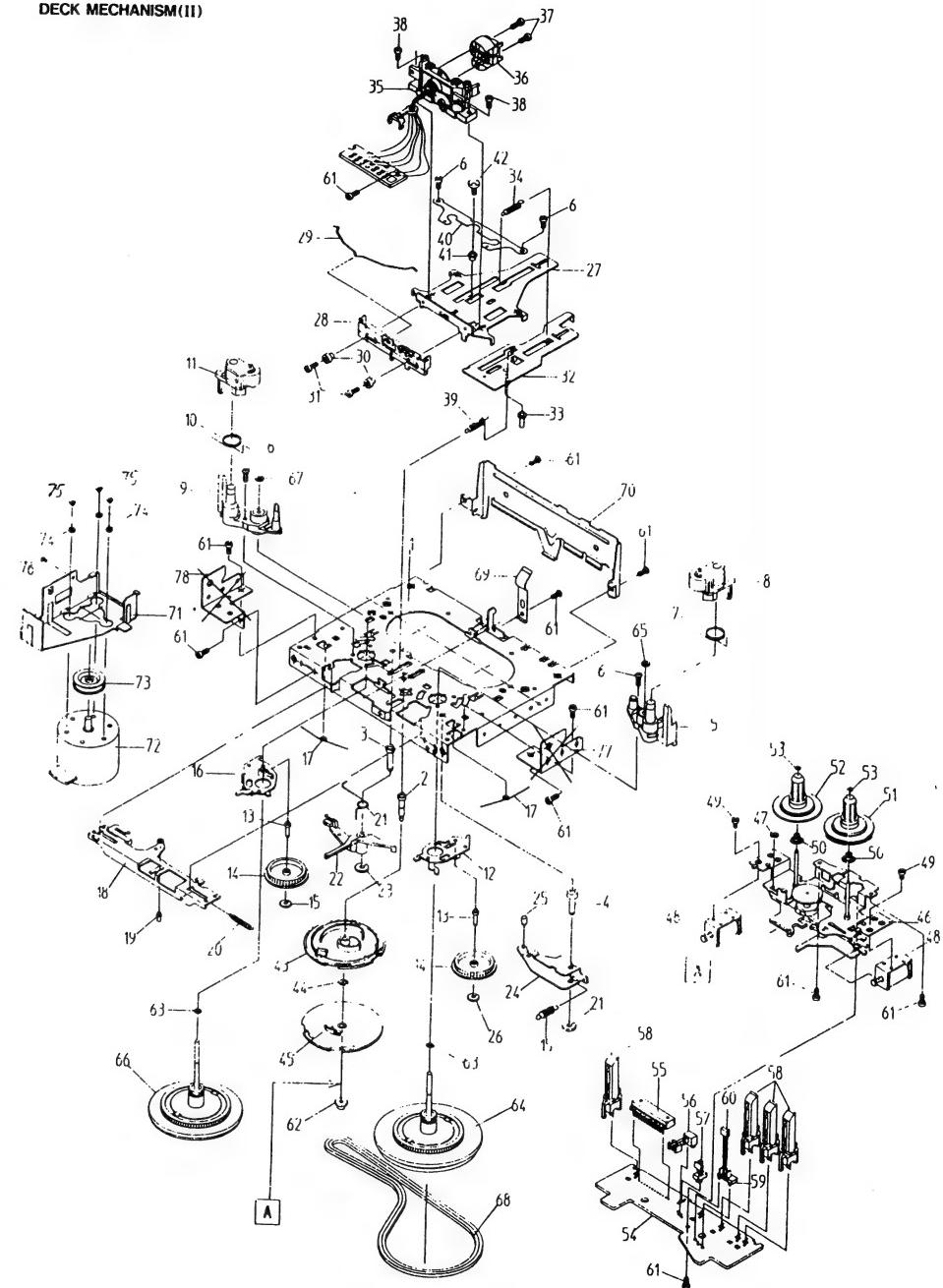
(TUNER)



DECK MECHANISM(I)



DECK MECHANISM(II)

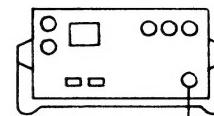
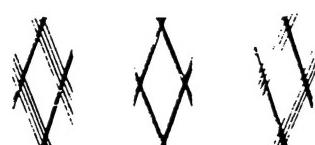
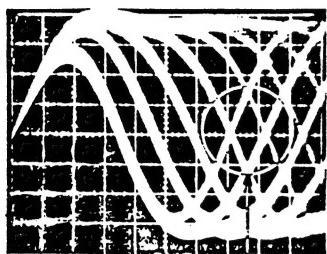


MEASUREMENTS AND ADJUSTMENTS

- Oscilloscope 1
- Signal Generator 1
- TEST DISC 5A(PHILIPS) 1
- Plastic drive(1.4mm) 1
- VTVM 1

1. FOCUS OFF SET ADJUSTMENT

1. Test equipment connection is shown is Fig 1.1.
2. Play the test disc.
3. Adjust VR91 so that the eye pattern of RF Signal is open widest. (Fig 1.2)

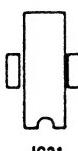
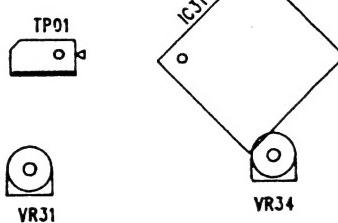
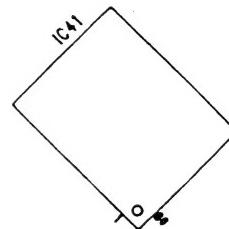
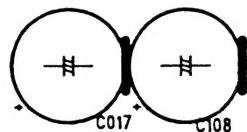
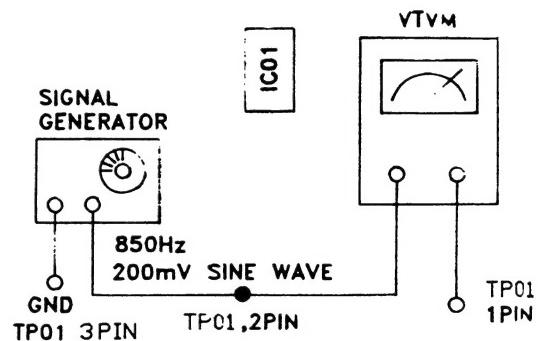


J109
GND
(Fig 1.1)

(Fig 1.2)

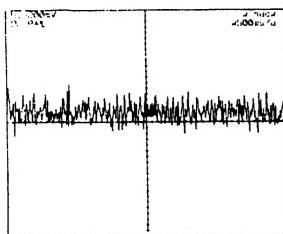
2. FOCUS GAIN ADJUSTMENT

1. Test equipment connection is shown is Fig 2.
2. Play the test disc.
3. Adjust VR93 until monitor level at VTVM becomes 400mV (AC).



■ WAVE FORMS

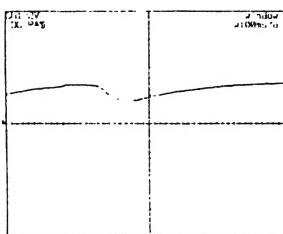
① FE-O
(TEST POINT : IC31-PIN6)
Focus Drive Output



P-P 3.68mV AVG 112mV FALL 85mS
MAX 3.20mV UNDSHT 43% FREQ 7.142kHz
MIN -4.68mV OVRSHRT 57% PERIOD 140mS
RMS 1.32mV RISE 10mS +WIDTH 50mS -WIDTH 90mS

② SRCH

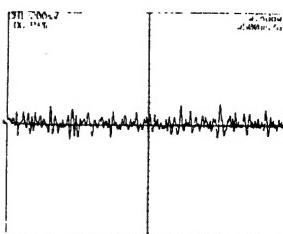
(TEST POINT : IC31-PIN8)
PIN for Providing a time constant to generate the focus search waveform.



P-P 1.44V AVG 2.32V FALL 52mS
MAX 2.98V UNDSHT 15% -WIDTH 232mS
MIN 1.52V OVRSHRT 23% RISE 244mS
RMS 2.40V +WIDTH 70mS -WIDTH 180mS

③ TA-O

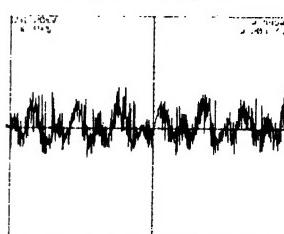
(TEST POINT : IC31-PIN13)
Tracking drive output



P-P 2.80mV AVG 8mV FALL 15mS
MAX 1.52mV UNDSHT 67% FREQ 4.000kHz
MIN 1.28mV OVRSHRT 67% PERIOD 250mS
RMS 4.44mV RISE 75mS +WIDTH 70mS -WIDTH 180mS

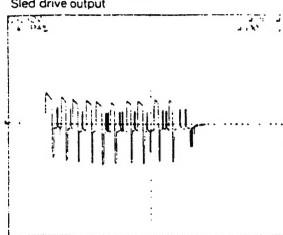
④ SL-P

(TEST POINT : IC31-PIN14)
Inverse input pin for the sled Amplifier.



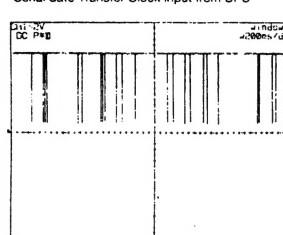
P-P 53.6mV AVG 1.6mV FALL 1.2mS
MAX 31.2mV UNDSHT 27% FREQ 48.07MHz
MIN 22.4mV OVRSHRT 27% PERIOD 2.048ms
RMS 10.4mV RISE 4.2ms +WIDTH 14.0ms -WIDTH 7.0ms

⑤ SL-O
(TEST POINT : IC31-PIN16)
Sled drive output



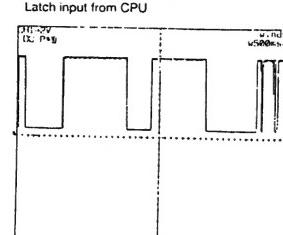
P-P 5.28V AVG 80mV FALL 5mS
MAX 2.32V UNDSHT 73% FREQ 7.692Hz
MIN -2.36V OVRSHRT 127% PERIOD 130ms
RMS 9.60mV RISE 55mS +WIDTH 100mS -WIDTH 30mS

⑥ CLK
(TEST POINT : IC31-PIN19)
Serial date Transfer Clock input from CPU



P-P 5.28V AVG 5.60V FALL 2mS
MAX 5.84V UNDSHT 2% FREQ 25.00Hz
MIN 5.60mV OVRSHRT 2% PERIOD 40mS
RMS 5.72V RISE 2mS +WIDTH 38mS -WIDTH 2mS

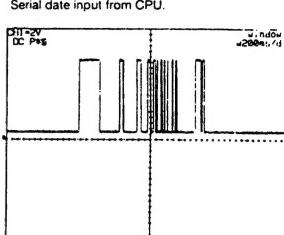
⑦ XLT
(TEST POINT : IC31-PIN20)
Latch input from CPU



P-P 5.28V AVG 3.76V FALL 5mS
MAX 5.84V UNDSHT 0% FREQ 1.030Hz
MIN 5.60mV OVRSHRT 0% PERIOD 970mS
RMS 4.56V RISE 5mS +WIDTH 80mS -WIDTH 890mS

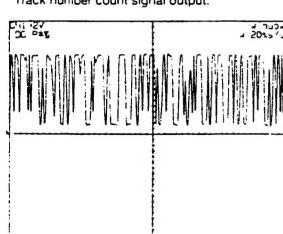
⑧ DATA

(TEST POINT : IC31-PIN21)
Serial date input from CPU.



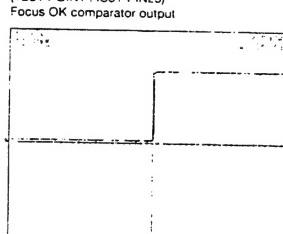
P-P 5.36V AVG 1.04V FALL 5mS
MAX 5.84V UNDSHT 2% FREQ 31.25Hz
MIN 4.80mV OVRSHRT 2% PERIOD 34mS
RMS 1.92V RISE 2mS +WIDTH 16mS -WIDTH 18mS

⑨ C.COUT
(TEST POINT : IC31-PIN23)
Track number count signal output.



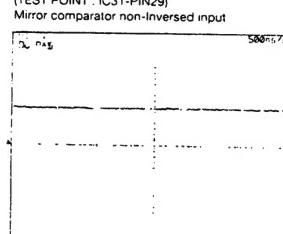
P-P 5.20V AVG 3.26V FALL 1.0mS
MAX 5.76V UNDSHT 3% FREQ 138.8Hz
MIN 5.60mV OVRSHRT 2% PERIOD 7.2mS
RMS 1.96V RISE 1.8mS +WIDTH 6.0mS -WIDTH 1.2mS

⑩ FOK
(TEST POINT : IC31-PIN25)
Focus OK comparator output



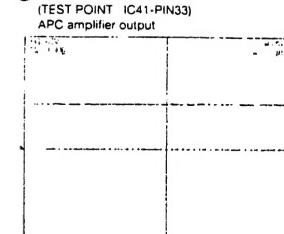
P-P 5.12V RMS 3.64V OVRSHRT 0%
MAX 5.20V AVG 2.24V RISE 10mS
MIN 80mV UNDSHT 3% +WIDTH 10mS

⑪ CP
(TEST POINT : IC31-PIN29)
Mirror comparator non-Inversed input



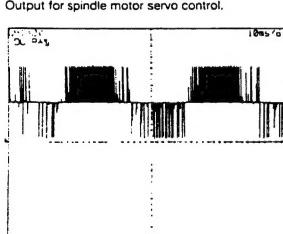
P-P 160mV AVG 2.64V FALL 5mS
MAX 2.72V UNDSHT 0% FREQ 8.333MHz
MIN 2.64mV OVRSHRT 100% PERIOD 120mS
RMS 2.68V RISE 5mS +WIDTH 10mS -WIDTH 10mS

⑫ LD
(TEST POINT : IC41-PIN33)
APC amplifier output



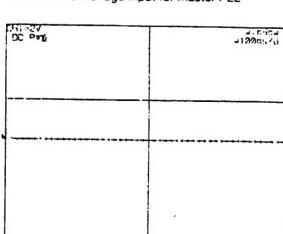
P-P 160mV AVG 3.20V FALL 0mS
MAX 3.36V UNDSHT 0% FREQ 25.00MHz
MIN 3.20V OVRSHRT 100% PERIOD 40mS
RMS 3.24V RISE 20mS +WIDTH 20mS -WIDTH 20mS

⑬ MDP
(TEST POINT : IC41-PIN3)
Output for spindle motor servo control.



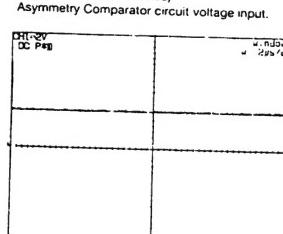
P-P 5.28V AVG 2.88V FALL 0mS
MAX 5.44V UNDSHT 5% FREQ 1.665kHz
MIN 1.60mV OVRSHRT 106% PERIOD 600mS
RMS 3.12V RISE 100mS +WIDTH 500mS -WIDTH 100mS

⑭ CLTV
(TEST POINT : IC41-PIN12)
VCO control voltage input for master PLL



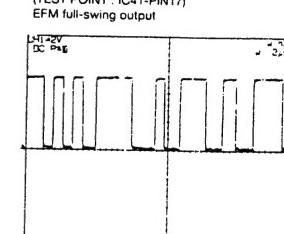
P-P 8.0mV AVG 2.72V FALL 0mS
MAX 2.80V UNDSHT 0% FREQ 500.0Hz
MIN 2.72V OVRSHRT 0% PERIOD 3mS
RMS 2.76V RISE 1mS +WIDTH 1mS -WIDTH 2mS

⑮ ASYI
(TEST POINT : IC41-PIN16)
Asymmetry Comparator circuit voltage input.



P-P 160mV AVG 2.56V FALL 0mS
MAX 2.72V UNDSHT 0% FREQ 25.00MHz
MIN 2.56mV OVRSHRT 100% PERIOD 40mS
RMS 2.60V RISE 20mS +WIDTH 20mS -WIDTH 20mS

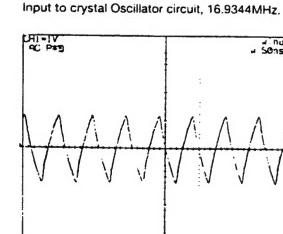
⑯ ASYO
(TEST POINT : IC41-PIN17)
EFM full-swing output



P-P 5.20V AVG 2.95V FALL 20mS
MAX 5.20V UNDSHT 2% FREQ 735.2kHz
MIN 0mV OVRSHRT 2% PERIOD 1.36mS
RMS 3.88V RISE 40mS +WIDTH 680mS -WIDTH 680mS

⑰ XTAL
(TEST POINT : IC41-PIN34)

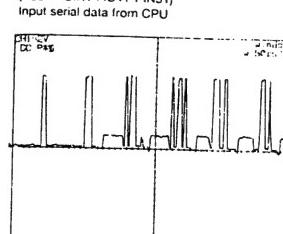
Input to crystal Oscillator circuit, 16.9344MHz.



P-P 2.40V AVG -40mV
MAX -1.16V UNDSHT 4%
MIN -1.24V OVRSHRT 2%
RMS 700mV RISE 22.0mS

⑱ DATA
(TEST POINT : IC41-PIN51)

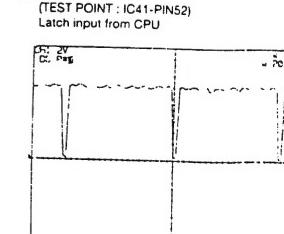
Input serial data from CPU



P-P 5.44V AVG 1.28V FALL 1.5mS
MAX 5.20V UNDSHT 8% FREQ 80.00kHz
MIN 2.24mV OVRSHRT 2% PERIOD 12.5mS
RMS 2.16V RISE 1.5mS +WIDTH 5.0mS -WIDTH 6.0mS

⑲ XLAT

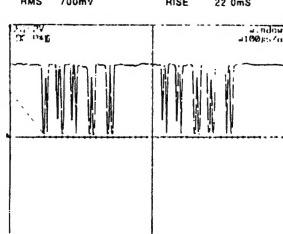
(TEST POINT : IC41-PIN52)
Latch input from CPU



P-P 5.20V AVG 4.80V FALL 1.8mS
MAX 5.36V UNDSHT 2% FREQ 13.5kHz
MIN 1.60mV OVRSHRT 3% PERIOD 74.0mS
RMS 5.00V RISE 1.8mS +WIDTH 70.0mS -WIDTH 4.0mS

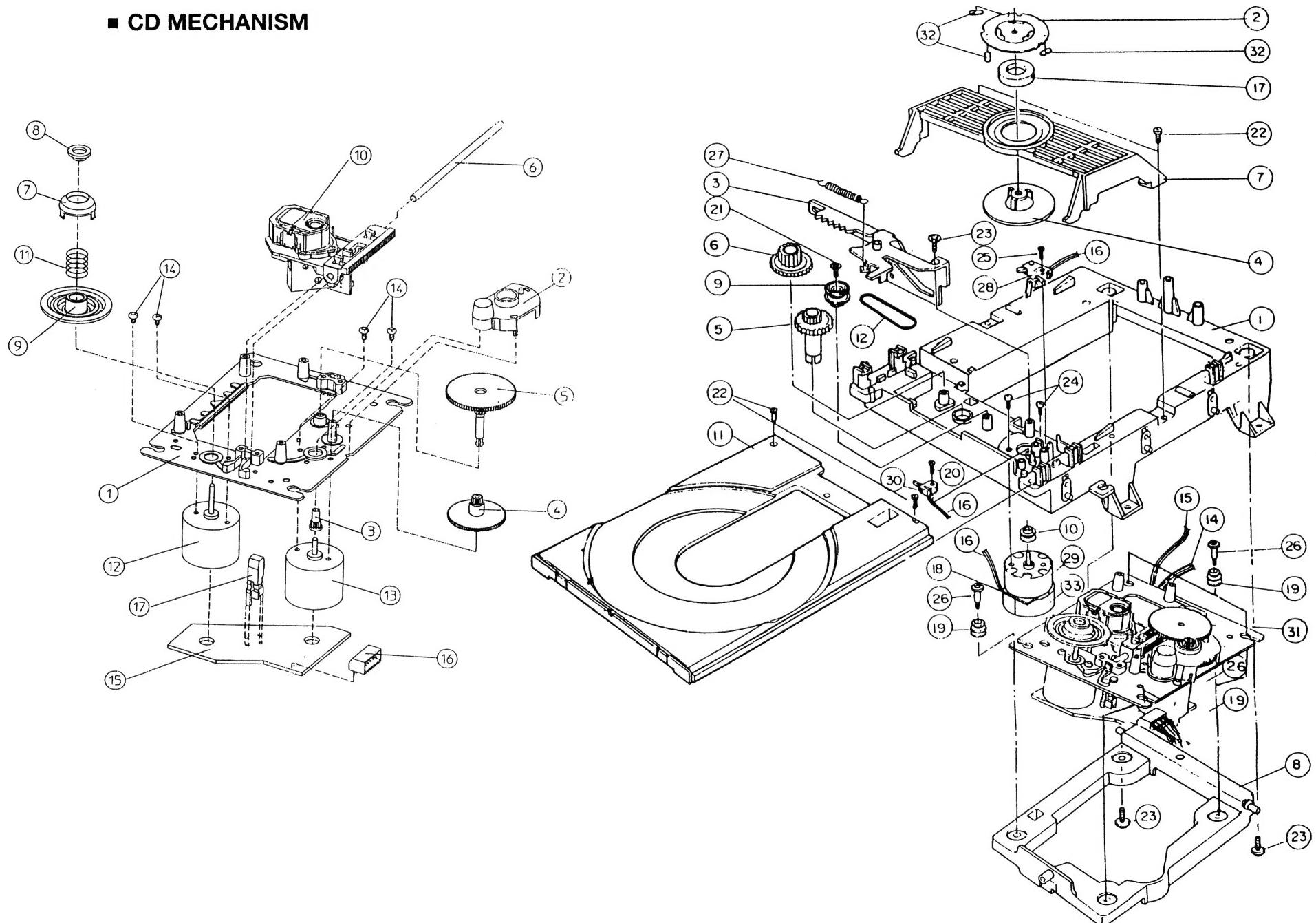
㉑ CLOCK

(TEST POINT : IC41-PIN53)
Input serial data transfer clock from CPU.

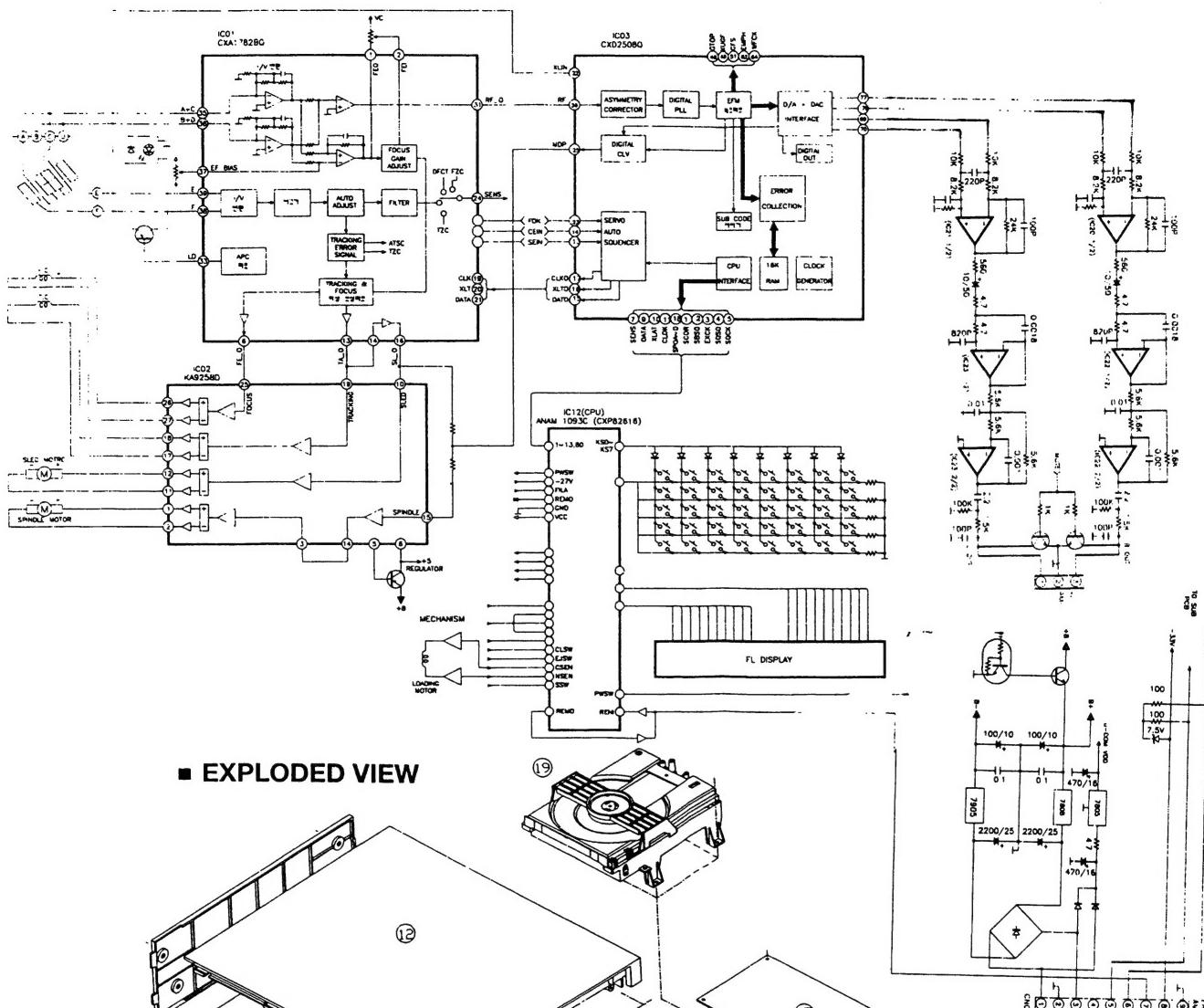


P-P 5.12V AVG 4.40V FALL 5mS
MAX 5.28V UNDSHT 2% FREQ 20.00kHz
MIN 1.60mV OVRSHRT 2% PERIOD 50mS
RMS 4.72V RISE 5mS +WIDTH 30mS -WIDTH 20mS

■ CD MECHANISM



■ BLOCK DIAGRAM



■ EXPLODED VIEW

